ABSTRACT OF THE DISCLOSURE

For each component which is used at a high in-service temperature for a long period, its creep damage degree is approximated by a relational expression containing the Larson-Miller parameter. The creep damage degree is estimated by an approximation expression obtained by determining constants for each component. The creep damage degree is subjected to Weibull statistical analysis to estimate the creep damage degree probabilistically. Also, the thermal fatigue and damage degree obtained by an approximation expression is likewise subjected to Weibull statistical analysis to estimate the thermal fatigue and damage degree probabilistically. Therefore, the probabilistically estimated creep damage degree and the probabilistically estimated thermal fatigue and damage degree allows the life of each component subjected to a high in-service temperature to be assessed precisely and quickly.